



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,270	12/05/2003	Albert A. Vierheilig	113222-132	1614

28089	7590	12/28/2007
WILMERHALE/NEW YORK		
399 PARK AVENUE		
NEW YORK, NY 10022		

EXAMINER	
DOUGLAS, JOHN CHRISTOPHER	

ART UNIT	PAPER NUMBER
1797	

NOTIFICATION DATE	DELIVERY MODE
12/28/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

michael.mathewson@wilmerhale.com
teresa.carvalho@wilmerhale.com
sharon.matthews@wilmerhale.com

Office Action Summary	Application No. 10/729,270	Applicant(s) VIERHEILIG ET AL.	
	Examiner John C. Douglas	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 57-66 and 77-121 is/are pending in the application.
- 4a) Of the above claim(s) 93-99 and 121 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 57-66, 77-92 and 100-120 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Examiner acknowledges the response filed on 12/11/2007 containing remarks and amendments to the claims. Examiner acknowledges claims 1-56 and 67-76 as cancelled. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 57-66, 77-92 and 100-120 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 57-66, 77-92 and 100-120 of copending Application No. 10/749695. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented. Both applications are claiming the same method of reducing sulfur in gasoline

produced in an FCC process, using the same mixed metal oxide compounds, which are produced by the same process.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of

35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 57-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vierheilg (US 6028023) in view of Poirier (US 5951851).

1. With respect to claims 57 and 62, Vierheilg discloses a material for use in a FCC process comprising, hydrotalcite-like compound with the formula $(X^{2+}_m Y^{3+}_n (OH)_{2m+2n}) OH_n \cdot bH_2O$, wherein X^{2+} and Y^{3+} are cations, m and n are selected such that the ratio of m/n is about 1 to about 10, a will have a value of 1, 2 or 3, b will range from 0 and 10, where the X is Mg, Ca, Zn, Mn, Co, Ni, Sr, Ba, Fe or Cu and the Y is Al, Mn, Fe, Co, Ni, Cr, Ga, B, La or Ce (see Vierheilg, column 12, lines 15-27). Vierheilg also discloses where the clays are often referred to as "mixed metal hydroxides" (see Vierheilg, column 1, lines 63-65). The compound being prepared by preparing a mixture of a divalent cation and a trivalent cation in an aqueous slurry, heating at a temperature of less than 250 degrees C to dry the compound to produce variable shaped bodies, heat treating the shaped bodies at a temperature between 300 and 850 degrees C, hydrating the heat treated compound to produce a hydrotalcite-like compound, and performing an optional drying step (see Vierheilg, column 6, lines 44-51, column 8, lines 34-51, column 9, lines 49-55, column 10, lines 8-11, and column 19, lines 47-55).

Vierheilg does not disclose where the Hydrotalcite-like compound is used in an FCC catalyst to remove sulfur from petroleum.

However, Poirier discloses using hydrotalcite to remove sulfur from hydrocarbon fluids (see Poirier column 2, line 64 – column 3, line 14).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Vierheilig to include contacting hydrocarbon fluids with hydrotalcite in order to remove sulfur from the hydrocarbon fluids.

2. With respect to claim 63, Vierheilig discloses where the shaped bodies comprise a support comprising calcium aluminate (see Vierheilig, column 18, lines 16-42).

3. With respect to claims 58 and 59, Vierheilig discloses where divalent cation is Magnesium and the trivalent cation is Aluminum (see Vierheilig, column 1, lines 5-19).

4. With respect to claims 60 and 61, Vierheilig discloses where the divalent compound is magnesium hydroxide and the trivalent compound is aluminum acetate (see Vierheilig, column 1, lines 5-19).

5. With respect to claims 64-66, Vierheilig discloses where the Hydrotalcite-like compounds are sorbents that comprise 10% of the FCC catalyst (see Vierheilig, column 16, lines 1-23).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John C. Douglas whose telephone number is 571-272-1087. The examiner can normally be reached on 7:30 A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCD

12/19/2007



Glenn Caldarola
Supervisory Patent Examiner
Technology Center 1700